Common Drugs and Antidotes

Antidote	Indication	Mode of Action
acetylcysteine (Mucomyst)	Acetaminophen/ Tylenol/ Paracetamol	Restores depleted glutathione stores and protects against renal and hepatic failure.
Activated charcoal	Non-specific poisons except cyanide, iron, lithium, caustics and alcohol.	Absorption of drug in the gastric and intestinal tracts. Interrupts the entero-hepatic cycle with multiple dose.
albuterol inhaler, insulin & glucose, $NaHCO_3$, kayexalate	Potassium	
anticholinesterase agents	Neuromuscular blockade (paralytics)	
atropine sulfate or pralidoxime	Anticholinesterase	Competitive inhibition of muscarinic receptors.
Benzylpenicillin	Amanita phalloides (Death cap mushroom)	Not known; partial protection against acute hepatic failure; may displace amatoxin from protein-binding sites allowing increased renal excretion; may also inhibit penetration of amatoxin to hepatocytes.
Calcium salts	Fluoride ingestion	Rapidly complexes with fluoride ion.
deferoxamine	Iron	Deferoxamine acts by binding free iron in the bloodstream and enhancing its elimination in the urine.
digibind digoxine immune fab	Digoxin	Binds molecules of digoxin, making them unavailable for binding at their site of action on cells in the body.
dimercapol, edetate calcium, disodium,	Lead	Chelation of lead ions and endogenous metals (e.g., zinc, manganese, iron, copper).
diphenhydramine (Benadryl)	Extrapyramidal symptoms (EPS)	A potent antagonist to acetylcholine in muscarinic receptors.
flumazenil	Benzodiazepines	Reverses the effects of benzodiazepines by competitive inhibition at the benzodiazepine binding site on the $GABA_A$ receptor.
fomepizole	Ethylene glycol	A competitive inhibitor of the enzyme alcohol dehydrogenase found in the liver. This enzyme plays a key role in the metabolism of ethylene glycol and methanol.
glucagon	Beta blockers and calcium channel blockers	Stimulates the formation of adenyl cyclase causing intracellular increase in cycling AMP and enhanced glycogenolysis and elevated serum glucose concentration.
Glucose (Dextrose 50%)	Insulin reaction	Dextrose (the monosaccharide glucose) is used, distributed and stored by body tissues and is metabolized to carbon dioxide and water with the release of energy.
Heparin	Ergotamine	Reverses hypercoagulable state by interacting with antithrombin III. Used in combination with vasodilator phentolamine or nitroprusside to prevent local thrombosis and ischemia.
Hydroxocobalamin	Cyanide	Forms cyanocobalamin, a non-toxic metabolite that is easily excreted through the kidneys.
leucovorin calcium	Fluorouracil	
	Methotrexate	Protects the healthy cells from the effects of methotrexate while allowing methotrexate to enter and kill cancer cells.
Magnesium sulfate	calcium gluconate	

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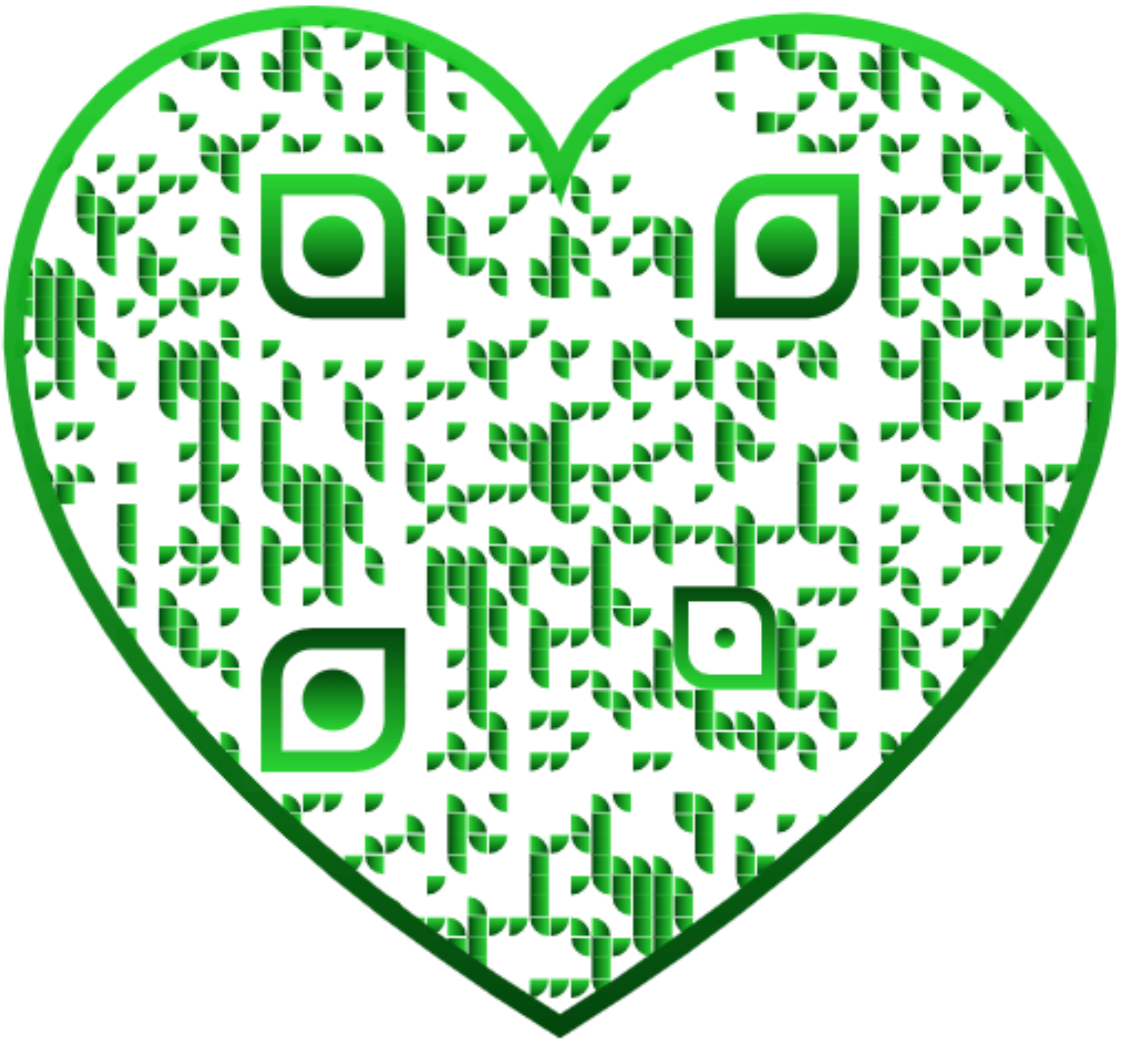

mesna	Cyclophosphamide	A “chemoprotectant” drug that reduces the undesired effects of certain chemotherapy drugs.
Methylene blue	Chemical producing severe methemoglobinemia. Ifosamide-induced encephalopathy.	Reduces methemoglobin to hemoglobin.
nalmefene or naloxone	Opioid analgesics	Prevents or reverses the effects of opioids including respiratory depression, sedation and hypotension.
naloxone (Narcan)	Narcotics	Naloxone is believed to antagonize opioid effects by competing for the μ, κ and σ opiate receptor sites in the CNS, with the greatest affinity for the μ receptor.
Neostigmine	Anticholinergics	Anticholinesterase which causes accumulation of acetylcholine at cholinergic receptor sites.
Nitrite, sodium and glycerytrinitrate	Cyanide	Oxidizes hemoglobin to methemoglobin which binds the free cyanide and can enhance endothelial cyanide detoxification by producing vasodilation.
Penicillamine	Copper, gold, lead, mercury, zinc, arsenic	Chelation of metal ions.
phentolamine (Regitine)	Dopamine	Regitine produces an alpha-adrenergic block of relatively short duration. It also has direct, but less marked, positive inotropic and chronotropic effects on cardiac muscle and vasodilator effects on vascular smooth muscle.
phyostigmine or $NaHCO_3$	Tricyclic antidepressants	A reversible anticholinesterase which effectively increases the concentration of acetylcholine at the sites of cholinergic transmission.
Phytomenadione (Vitamin K.)	Coumadin/Warfarin	Bypasses inhibition of Vitamin K epoxide reductase enzyme.
protamine sulfate	Heparin	Protamine that is strongly basic combines with acidic heparin forming a stable complex and neutralizes the anticoagulant activity of both drugs.
Pyridoxine	Isoniazid, theophylline, monomethyl hydrazine. Adjunctive therapy in ethylene glycol poisoning.	Reverses acute pyridoxine deficiency by promoting GABA synthesis. Promotes the conversion of toxic metabolite glycolic acid to glycine.
Snake anti-venin	Cobra bite	Neutralizes venom by binding with circulating venom components and with locally deposited venom by accumulating at the bite site.
Sodium Bicarbonate	Iron	Prevents convertion of ferrous to ferric.
	Cardiotoxic drug affecting fast sodium channel (TCA, cocaine)	Decreases affinity of cardiotoxic drugs to the fast sodium channel.
	Weak acids	Promotes ionization of weak acids.
	Chlorine gas inhalational poisoning	Neutralization of hydrochloric acid formed when chlorine gas reacts with water in the airways.
Sodium thiosulphate	Cyanide	Replenishes depleted thiosulphate stores by acting as sulfur donor necessary for the conversion of CN-O to thiocyanate through the action of sulfur transferase enzyme rhodanese.
Thiamine	Alcohol, Wernicke-Korsakoff Syndrome	Reverses acute thiamine deficiency
	Adjunctive in ethylene glycol	Enhances detoxification of glyoxylic acid.
Vitamin C	Chemicals causing methemoglobinemia in patients with G6PD deficiency	Reduces methemoglobin to hemoglobin.

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